NASA Range Safety Program
2006 Annual Report

PROGRAM OVERVIEW

2006 proved to be another eventful and exciting year in the Range Safety realm. Before we highlight the areas covered in this year's edition, it's important to restate the goal of the NASA Range Safety Program. The program is defined in NPR 8715.5, dated 8 July 2005, and is signed by the NASA Administrator. The goal of the program is to protect the public, the workforce, and property during range operations such as launching, flying, landing, and testing launch vehicles. This goal applies to all centers and test facilities and all space vehicle programs including expendable launch vehicles, reusable launch vehicles, uninhabited aerial vehicles, and the Space Shuttle as well as any NASA-funded commercial ventures that involve range operations. We meet the goal of the NPR by mitigating and controlling hazards, such as uncontrolled vehicles, debris, explosives, and toxics associated with range operations.

In this issue, we cover several areas of range safety that point to how we meet or implement the range safety program. One of our primary focuses relates to range safety training and our continuing efforts regarding the NASA Range Safety Training Program. We brought one additional class on-line in 2006, and are poised to bring another course on-line in 2007. We've also been extremely busy in the development, implementation, and support of range safety policy.

The year started out in full swing with the advent of the Constellation Program. Since last December, we've been working the challenges associated with bringing a new program to Kennedy Space Center. We also cover the strides we've made regarding the risk and variance processes that are now in place for flights from the Eastern and Western Ranges. We're also busy working on agreements with the Eastern and Western Ranges regarding NASA Range Safety on-console launch support. In 2005, we secured agreements with the ranges regarding personnel on-console for NASA launch operations. In 2006, we worked to further codify these processes.

NASA Range Safety personnel continue to support the Range Commander's Council meetings and have been involved in updating policy related to flight safety systems and flight safety analysis. A recap of these efforts is highlighted. We address our continued support to the Common Standards Working Group in updates to current range safety policy, as well as assisting in development of new policy for reusable launch vehicles. We are also working with the 45th Space Wing Safety Office to develop a policy document for unmanned aerial vehicles that we hope to use to promote safe flying at Kennedy Space Center and on the Eastern Range in the not-too-distant future.

Another milestone achieved this year was gaining approval of the Space Shuttle Launch and Landing Implementation Plans. NASA Range Safety also stayed fully engaged on issues related to flight safety systems throughout the year. A detailed discussion of the challenges the range safety community is currently facing regarding flight safety systems in the areas of secure technology and frequency use is provided.

In addition to working training and policy issues, NASA Range Safety was involved in one independent assessment of Orbital Sciences Corporation in 2006. We also present our efforts in establishing or identifying a common risk analysis tool for use at all NASA launch locations. This issue focuses on our efforts to properly account for personnel on

PROGRAM OVERVIEW

center during launch operations via the Self-Service Management Tool that is in use at Kennedy Space Center. We address launch operations at other NASA Centers, specifically with support provided to Wallops Flight Facility for the launch of TACSAT-2 on a Minotaur launch vehicle, and we provide a re-cap of launches from all ranges for the year.

One of the areas that holds the interest of many in the range safety community is emerging range safety technology. Articles that focus on space based range capabilities, autonomous flight safety systems, the enhanced flight termination system, the joint advanced range safety system and the subminiature flight safety system are included in this issue. In addition, we cover instrumentation upgrades that have been put in place at the Eastern Range over the year.

This issue provides insight into some special interest items, specifically the details surrounding distant focusing overpressure modeling and how that relates to launch risk. Other articles address on the State of Florida's efforts to educate launch providers on range safety and recent strides in the expendable launch vehicle payload safety world.

We wrap this issue up with range safety reports from the NASA Centers that were actively involved with range safety issues throughout the year. The graphic below gives a brief overview of the major topics contained in this report. Feel free to migrate directly to any topic by selecting items that are of interest.